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CLAIMS

What is claimed is:

- 1. A method of producing at least one vector encoding an array of antigens for expression in an antigen-presenting cell comprising:
- 5 (a) comparing first nucleic acid sequences expressed by a target cell population with second nucleic acid sequences expressed by a non-target cell population;
 - (b) selecting nucleic acid sequences preferentially expressed by the target cell population relative to the non-target cell population; and
 - (c) introducing the selected nucleic acid sequences into at least one vector capable of directing expression of the selected nucleic acid sequences in an antigen-presenting cell.
 - 2. The method of claim 1, wherein the antigen-presenting cell is a dendritic cell, macrophage, B cell, monocyte or fibrocyte.
- 15 3. The method of claim 1, wherein the vector further comprises an antigenpresenting cell targeting element.
 - 4. The method of claim 1, wherein the first and second nucleic acid sequences are of the same tissue of origin.
- 5. The method of claim 1, wherein the selected nucleic acid sequences comprise at least 5 different nucleic acid sequences.
 - 6. The method of claim 1, wherein the selected nucleic acid sequences comprise at least 7 different nucleic acid sequences.

- 7. The method of claim 1, wherein the selected nucleic acid sequences comprise at least 9 different nucleic acid sequences.
- 8. The method of claim 1, wherein the vector further comprises a nucleic acid sequence encoding an immunomodulatory cofactor.
- The method of claim 8, wherein the immunomodulatory cofactor is IL-2, IL-3,
 IL-8, OKT3, α-interferon, γ-interferon, or MIP-1α.
 - 10. The method of claim 1, wherein the vector further encodes at least one selectable marker.
- 11. The method of claim 10, wherein the selectable marker is PLAP, GFP or neomycin resistance.
 - 12. The method of claim 1, wherein the target cell is a cancer cell.
 - 13. The method of claim 1, wherein the target cell is a virus, a bacterium or a parasite.
- 14. A composition comprising at least one vector produced by the method of claim
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 - 15. The composition of claim 14, wherein the vector further comprises an antigenpresenting cell targeting element.
 - 16. The composition of claim 14, further comprising an antigen-presenting cell.
- 17. A method of producing an antigen-presenting cell that presents an array of antigens comprising:
 - (a) comparing first nucleic acid sequences expressed by a target cell
 population with second nucleic acid sequences expressed by a non-target
 cell population;

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- (b) selecting at least one nucleic acid sequence preferentially expressed by the target cell population relative to the non-target cell population; and
- (c) genetically modifying an antigen-presenting cell to express the selected nucleic acid sequences.
- 5 18. The method of claim 17, wherein the antigen-presenting cell is a dendritic cell, macrophage, B cell, monocyte or fibrocyte.
 - 19. The method of claim 17, wherein the first and second nucleic acid sequences are of the same tissue of origin.
 - 20. The method of claim 17, wherein the selected nucleic acid sequences comprise at least 5 different nucleic acid sequences.
 - 21. The method of claim 17, wherein the selected nucleic acid sequences comprise at least 7 different nucleic acid sequences.
 - 22. The method of claim 17, wherein the selected nucleic acid sequences comprise at least 9 different nucleic acid sequences.
 - 23. The method of claim 1, wherein the selected nucleic acid sequence further encodes at least one selectable marker.
 - 24. The method of claim 23, wherein the selectable marker is PLAP, GFP or neomycin resistance.
 - 25. The method of claim 17, wherein the target cell is a cancer cell.
- 20 26. The method of claim 17, wherein the target cell is a virus, a bacterium or a parasite.
 - 27. An antigen-presenting cell produced by the method of any one of claims 17-26.

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- 28. A method of activating T cells comprising contacting a T cell with an antigenpresenting cell of claim 27.
- 29. The method of claim 28, wherein the T cell is a cytotoxic T lymphocyte.
- 30. A method of inducing a toleragenic response comprising contacting a T cell with an antigen-presenting cell of claim 27.
 - 31. The method of claim 30, wherein the T cell is a $T_{\rm H2}$ cell.
 - 32. The method of claim 28 or 30, wherein the contacting occurs in vivo.
 - 33. The method of claim 28 or 30, wherein the contacting occurs ex vivo.
- 34. The method of claim 32 or 33, wherein the activating is in the presence of an immunomodulatory cofactor.
- 35. The method of claim 34, wherein the immunomodulatory cofactor is IL-2, IL-3. IL-8, OKT3, α-interferon, γ-interferon, or MIP-1α.
- 36. A method of activating T cells *in vivo* comprising administering the composition of claim 14 to a subject.
- 15 37. A method of killing a target cell *in vivo* comprising administering the composition of claim 14 or the antigen-presenting cell of claim 27 to a subject.
 - 38. A method of preventing infection comprising administering the composition of claim 14 or the antigen-presenting cell of claim 27 to a subject.
- A method of treating cancer comprising administering to a subject the composition of claim 14 or the antigen-presenting cell of claim 27, wherein the target cell is a cancer cell.

40. A method of treating an infection comprising administering to a subject the composition of claim 14 or the antigen-presenting cell of claim 27, wherein the target cell is an infectious agent.